IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

PERHOLTZ et al.

Atty. New Ref.: 2540-550

Serial No. 10/032,325

Group: 2142

Filed: December 31, 2001

Examiner: Cardone, J.

For: **SYSTEM AND METHOD FOR REMOTE MONITORING AND OPERATION OF PERSONAL COMPUTERS**

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June 8, 2004

Hon. Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

RESPONSE TO REQUEST FOR INFORMATION UNDER 37 C.F.R. 1.105

The following is a response to the Request for Information Under 37 C.F.R. 1.105 mailed on January 23, 2004 ("the Request"), for which Applicants hereby petition for a two-month extension of time under 37 C.F.R. 1.136(a).

The Manual of Patent Examining Procedure ("MPEP") makes it clear that a request for information under 37 C.F.R. 1.105 should be narrowly tailored to minimize the burden placed on applicants. For example, MPEP § 704.11 states:

> A requirement for information under 37 CFR 1.105 places *a substantial burden on the applicant that is to be minimized* by clearly focusing the reason for the requirement *and the scope of the expected response*. Thus, the scope of the requirement should be *narrowly defined*, and a requirement under 37 CFR 1.105 may only be made when the examiner has a reasonable basis for requiring information. [emphasis added].

> "The information required would typically be that necessary for finding prior art or for resolving an issue arising from the results of the search for art or from analysis of the application file." [MPEP § 704.11].

The Request does not identify any "issue arising from the results of the search for art" or any "issue arising . . . from analysis of the application file" that is the basis of the Request for Information. Instead, the Request appears directed to "finding prior art." Therefore, in responding to the Request, Applicants have directed their efforts to assist the Examiner in locating prior art. Applicants are somewhat confused, however, because, during the prosecution of the present reissue application, Applicants have submitted about 180 references for consideration. Many of these references were brought to Applicants' attention during the course of litigation involving U.S. Patent No. 5,721,842, which is owed by the assignee of the present application. Therefore, Applicants believe that all known material prior art has been submitted to the Patent Office and is available to the Examiner to use in examining this application.

The MPEP also makes it clear that "[a] requirement for information [under Rule 1.105] is only warranted where the benefit from the information exceeds the burden in obtaining information." (MPEP § 704.14). It is important to note that "applicant is required by 37 CFR 1.105 to submit information already known, *but there is no requirement to search for information that is unknown.*" (MPEP § 704.12(a) (emphasis added)). "The duty of candor and good faith under 37 CFR 1.56 applies to the applicant's reply to a requirement for information under 37 CFR 1.105, and *requires that the applicant reply to a requirement under 37 CFR 1.105 with information reasonably and readily available.*" (MPEP § 704.12(a) (emphasis added)). Moreover, "[a] complete reply to a 37 CFR 1.105 requirement is a reply to each enumerated requirement for information giving either the information required or a statement that the

information required to be submitted is unknown and/or is not readily available to the party or parties from which it was requested." (MPEP § 704.12(b)).

Applicants submit the following information which is "reasonably and readily available" to the Applicants and others within the scope of Rule 1.56, as required by MPEP § 704.12(a). Applicants have *not* conducted any search for information that is unknown, in accordance with MPEP § 704.12(a). This response is broken down by the specific categories contained in the Request.

A. The names of any products or services that have incorporated the claimed subject matter.

The Request appears to require information beyond that permitted under rule 105. Nonetheless, the names of Applicants' products that are reasonably and readily available and that have incorporated the currently-claimed subject matter or various aspects thereof are: KeyView, KeyView II, AutoView 1000R KVM Switch (certain configurations), AutoView 2000R KVM Switch (certain configurations), DS1800 KVM Switch, DSR1010 KVM Switch, DSR2010 KVM Switch, DSR4010 KVM Switch, DSR800 KVM Switch, and DSView Software (in combination with hardware components). Applicants are not aware of any services that have incorporated the claimed subject matter. None of the products incorporating the currently-claimed subject matter is prior art to the present application.

Any other information requested by this portion of the Request is beyond that permitted by rule 105, is unknown, and/or is not readily available to the party or parties from which it was requested.

B. The names of any products or services that have incorporated the disclosed prior art of remote monitoring.

The following are the names of products that are reasonably and readily available and that have incorporated the disclosed prior art of remote monitoring: Crosstalk, Procomm Plus, Unicom, Carbon Copy, Map Assist, Commander, Master Console, Plex, pcAnywhere software in conjunction with associated hardware, and Reachout software in conjunction with associated hardware.

Any other information requested by this portion of the Request is beyond that permitted by rule 105, is unknown, and/or is not readily available to the party or parties from which it was requested.

C. The title, citation and copy of each publication which any of the applicants authored or co-authored and which describe the disclosed subject matter of claims 123-128, 136-140, 144-162, 165-170, 172-183, 186-190 and 193-246.

Applicants make the following response based on information that is reasonably and readily available. Applicants are not aware of any publications authored or co-authored by the inventors which describe the disclosed subject matter of claims 123-128, 136-140, 144-162, 165-170, 172-183, 186-190 and 193-246.

Any other information requested by this portion of the Request is beyond that permitted by rule 105, is unknown, and/or is not readily available to the party or parties from which it was requested.

D. The specific improvements of the subject matter in claims 123-128, 136-140, 144-162, 165-170, 172-183, 186-190 and 193-246 over the disclosed prior art and indicate the specific elements in the claimed subject matter that provide those improvements.

Applicants make the following response based on information that is reasonably and readily available. Applicants also note that it is black-letter patent law that, in order to be patentable, it is the entire combination recited in the claims, rather than "specific improvements," that must be novel and nonobvious over the prior art. Thus, Applicants submit that it is *the specific combinations of claim elements* recited in each of claims 123-128, 136-140, 144-162, 165-170, 172-183, 186-190 and 193-246 that render those claims patentable "improvements" over the prior art. Therefore, it is not possible to identify specific claim elements which provide an improvement over the prior art without looking to each claim as a whole. By definition, the claimed combination is the improvement. In light of the foregoing, Applicants will attempt to identify (using italics) specific claim elements which may be of interest to the Examiner in examining the claims in light of the disclosed prior art – *without* admitting that non-italicized elements can be ignored for purposes of patentability. This response is provided on a claim-by-claim basis.

123. A computer monitoring system comprising:

plural host computer sites, each host computer site having at least one host computer, the at least one host computer including a host processor, a host input device, and a host display device;

a remote processor situated at a remote site, the remote processor having a remote display device and a remote input device connected thereto;

a network linking the remote site and each of the plural host computer sites, the network facilitating a first connection between a first selected host computer at a first host computer site and the remote site, and during the first connection either:

(a) transmitting screen data from the host display device of the first selected host computer to the remote display device, and

(b) transmitting input signals from the remote input device to the first selected host computer for controlling the first selected host computer;

an on-screen display process, execution of the on-screen display process at the remote site providing a pop-up screen on the remote display device, the pop-up comprising a menu identifying the host computers at the plural host computer sites, the pop-up screen at least overlaying the video appearing on the remote display device as a result of the first connection; whereupon operation of the remote input device in response to the menu of the pop-up screen causes the remote site to terminate the first connection and to establish a second connection between a second selected host computer and the remote site.

124. The apparatus of claim 123, *wherein the second selected host computer is situated at a second host computer site.*

125. The apparatus of claim 123, *wherein at least one of the plural host computer sites comprises a network of host computers.*

126. The apparatus of claim 125, *wherein at least one of the plural host computer sites comprises a daisy chained configuration of host computers.*

127. The apparatus of claim 125, *wherein at least one of the plural host computer sites comprises a daisy chained configuration of host computers, the daisy chain configuration including a host unit associated with each of the host computers, wherein for each of the host computers the host unit is connected between the host computer and a source of power for the host computer, and wherein upon receipt of the cold boot command from the remote site the host unit temporarily interrupts power to the host processor of the host computer.*

128. The apparatus of claim 125, *wherein at least one of the plural host computer sites comprises a daisy chained configuration of host computers, the daisy chain configuration including a host unit associated with each of the host computers, wherein for at least one of the host computers the host unit is connected between the host processor and at least one of the host input device and the host display device of the at least one of the host computers.*

136. A system for interfacing digitized keyboard signals with a computer processor generating analog video signals, comprising:

a remote access facility;

a non-dedicated serial channel; and

a computer access interface receiving from the remote access facility via the non-dedicated serial channel the digitized keyboard signals and transmitting to the remote access facility via the non-dedicated serial channel a digitized version of the analog video signals, wherein the non-dedicated serial channel is between the remote access facility and the computer access interface.

137. The system of claim 136, *wherein the channel includes a network.*

138. The system of claim 136, wherein the channel includes a wireline.

139. The system of claim 136, wherein the channel includes a modem-to-modem communication channel.

140. The system of claim 136, wherein the computer processor includes a computer keyboard port and a computer video device port, *the computer access interface including a dedicated link to the keyboard port for transmitting the keyboard signals to the computer processor and including another dedicated link to the video device port for receiving the analog video signals from the computer processor.*

144. The system of claim 136, *wherein the computer access interface further receives computer keyboard commands from the computer processor and transmits the keyboard commands on the non-dedicated serial channel to the remote access facility.*

145. The system of claim 136, *wherein the computer access interface further receives computer mouse commands from the computer processor and transmits the mouse commands on the non-dedicated serial channel to the remote access facility.*

146. The system of claim 136, *wherein the computer access interface determines changes in the analog video signals and produces the digitized version of the analog video signals in accordance with the changes.*

147. The system of claim 136, *wherein the computer access interface analyzes characteristics of the analog video signals and produces the digitized version of the analog video signals in accordance with results of said analysis of the analog video signal characteristics.*

148. The system of claim 147, wherein the analog video signals include RGB information including RGB components and *wherein the computer access interface produces the digitized version of the analog video signals by applying a digitization process to each RGB component of the RGB information.*

149. The system of claim 148, *wherein the digitization process includes analyzing phase characteristics of each RGB component.*

150. The system of claim 148, *wherein the digitization process includes analyzing amplitude characteristics of each RGB component.*

151. The system of claim 136, *wherein the computer access interface includes hardware defining at least a local video port and wherein the computer access interface supports a video pass-thru mode for continuously applying the video signal to the local video port of the computer access interface.*

152. The system of claim 136, *wherein the computer processor receives AC power and the computer access interface receives a request to break the AC power and then coordinates a break in the AC power to the computer processor.*

153. The system of claim 152, *further including a power break component receiving the AC power and delivering the AC power to the computer processor, wherein the computer access interface delivers a power break command signal to the power break component upon receipt of the request to break.*

154. The system of claim 136, *wherein the computer access interface includes a page alert process generating an outgoing phone call to a predefined page number whenever a remote access user of the remote access facility fails to enter an appropriate access code.*

155. The system of claim 136, *wherein the computer access interface generates a predefined audio signal whenever a remote access user establishes communication with the computer access interface via the remote access facility.*

156. The system of claim 136, *wherein the computer access interface generates a predefined visual signal whenever a remote access user establishes communication with the computer access interface via the remote access facility.*

157. A system for monitoring a host computer from a remote processor the host computer including a host processor and a host display device port and the remote processor including a remote display device comprising:

a host unit connected between the remote processor and the host computer which (1) causes screen data output on the host display device port to appear also on the remote display device whereby at least a situation requiring a reset operation appears at the host unit and (2) upon receipt of a reset command, causes the host unit to initiate a reset operation of the host computer.

158. The system of claim 157, *wherein the host unit also automatically causes a reset operation whenever a connection between the remote processor and the host unit is terminated.*

159. The system of claim 157, *wherein the host unit receives communications from the remote processor via a telephone carrier signal and the host unit includes a carrier detect circuit*

and automatically causes the reset operation upon a determination made by the carrier detect circuit of the absence or presence of the carrier signal.

160. A method of monitoring a computer system comprising:

providing a host unit between a host computer and a remote processor; the host computer including a host processor and a host display device port, the remote processor including a remote display device;

using the host unit to cause screen data output on the host display device port to appear also on the remote display device whereby at least a situation requiring a reset operation appears at the host unit; and

receiving a reset command at the host unit and thereupon causing the host unit to initiate a reset operation of the host computer.

161. The method of claim 160, *wherein the host unit also automatically causes a reset operation whenever a connection between the remote processor and the host unit is terminated.*

162. The method of claim 161, *further including the steps of receiving communications from the remote processor at the host unit via a telephone carrier signal and wherein the host unit includes a carrier detect circuit and automatically causes the reset operation upon a determination made by the carrier detect circuit of the absence or presence of the carrier signal.*

165. A system, comprising:

a user station, comprising:

an analog video source generating analog video signals;

an analog video port exhibiting the analog video signals;

a video display connected to the video port to retrieve from the port the analog video signals and to display the retrieved analog video signals;

a video processor to receive, digitize and packetize the analog video signals into packeted digital video signals;

a network connector to establish a logical digital data path from the user station to a remote station and to deliver the packeted digital video signals onto the established logical digital data path;

a keyboard port for keyboard signals, *the network connector also delivering keyboard signals from the remote user to the keyboard port via the established logical digital data path;*

a mouse port for mouse signals, *the network connector also delivering mouse signals from the remote user to the mouse port via the established logical digital data path; and*

a processor to retrieve the keyboard and mouse signals from the remote user and to instruct the analog video source to generate new analog video signals based on the retrieved keyboard and mouse signals.

166. A user station as in claim 165 wherein the network connector includes a modem.

167. A user station as in claim 165 *wherein the network connector includes a router to read addresses on the packeted digital video signals and route the packeted digital video signals along the established logical digital data path based on the addresses.*

168. The system according to claim 165, further comprising:

a plurality of user stations;

the system further comprising:

a remote computer, having:

a data entry device port to receive entry device data entered from a standard keyboard or mouse; and

a video processor to receive, de-digitize and de-packetize the packeted digital video signals back into the analog video signals.

169. A system for controlling a target computer from a remote workstation of the type that includes a keyboard, a mouse, and a monitor, comprising:

a host processor and associated video memory and keyboard/mouse buffers;

a video digitizer coupled to the host processor that receives analog video signals from the target computer, samples the video signals, and stores the video signals in the video memory;

a keyboard/mouse interface that receives keyboard and mouse signals from the remote workstation and stores them in the keyboard/mouse buffers; and

the host processor operating a remote access and control program that transmits the contents of the video memory to the remote workstation and receives the contents of the keyboard/mouse buffers from the target computer, both over a communication link.

170. The system of claim 169, *wherein the host computer receives the keyboard and mouse signals from the remote workstation, stores the received keyboard and mouse signals in the buffers and forwards the contents of the keyboard/mouse buffers to a keyboard and mouse input on the target computer.*

172. The system of claim 169, wherein the communication link is a telephone line.

173. The system of claim 169, *wherein the communication link is a logical data path.*

174. The system of claim 169, *wherein the communication link is a network.*

175. The system of claim 169, *wherein the video digitizer includes a phase lock loop that produces a clocking signal having a frequency substantially equal to the time at which pixel values are transmitted in the video signal and a gating counter that passes the clocking signal to an analog to digital converter that samples the video signal during an active video portion of the video signal.*

176. The system of claim 169, *wherein the video digitizer alternatively samples a single color video signal in a frame of video data and stores the samples in the video memory.*

177. *A video digitizer for receiving analog video signals at a plurality of resolutions and for storing the video signals in a video memory of a host computer comprising:*

a synchronize detect circuit that detects vertical and horizontal synchronize signals from an analog video signal;

a microprocessor that determines a clocking rate at which the analog video signal should be sampled from the timing of the vertical and horizontal synchronize signals;

a clock signal generator that produces a clock signal at the clocking rate;

an analog to digital converter that is controlled by the clock signal to sample the analog video signal, and

a bus interface circuit that writes the samples of the analog video signal into the video memory of the host computer.

178. The video digitizer of claim 177, *wherein the clock signal generator comprises:*

a phase lock loop circuit that compares the phase of the horizontal synchronize signal with the phase of a divided clocking signal;

a variable oscillator that produces the clocking signal that controls the analog to digital converter, wherein the clocking signal has a frequency that is dependent on the difference in phase between the horizontal synchronize signal and the divided clocking signal; and

a programmable divider that receives the clocking signal produced by the variable oscillator and produces the divided clocking signal that is fed to the phase lock loop circuit.

179. The video digitizer of claim 178, *further comprising a gating circuit that receives the clocking signal and passes the clocking signal to the analog to digital converter during an active video portion of the analog video portion of the analog video signal.*

180. The video digitizer of claim 178, *further comprising a phase adjust circuit that adjusts the phase of the clocking signal.*

181. The video digitizer of claim 177, *further comprising a selection circuit that alternatively selects a red, green, and blue component on the analog video signal to be sampled by the analog to digital converter.*

182. The video digitizer of claim 177, *wherein the analog to digital converter includes separate analog to digital converters to sample the red, green, and blue components of the analog video signal.*

183. The video digitizer of claim 177, *wherein the host computer operates a remote access and control program that transmits the contents of the video memory to a remote computer system.*

186. A system for interfacing keyboard signals with a selected computer processor generating video signals, comprising:

an on-screen display generator to create a menu for a monitor associated with the keyboard signals, said menu listing the selected computer processor among a plurality of other computer processors for selection by a user of the monitor;

a network access device to interface with a network including the plurality of computer processors and the selected computer processor;

a video interface to receive the video signals from the network via the network access device;

a keyboard interface to read the keyboard signals and to deliver the keyboard signals to the selected computer processor via the network and the network access device.

187. A system according to claim 186, also for interfacing mouse signals with the selected computer processor, further comprising:

a mouse interface to read the mouse signals and to deliver the mouse signals to the selected computer processor via from the network and the network access device.

188. A system according to claim 186, wherein:

the keyboard interface communicates with the selected computer processor through a keyboard port of the selected computer processor.

189. A system according to claim 187, wherein:

the mouse interface communicates with the selected computer processor through a mouse port of the selected computer processor.

190. A system according to claim 188, further including:

an on-screen display generator to create a menu for a monitor associated with the keyboard signals, said menu listing the selected computer processor among a plurality of computer processors for selection by a user of the monitor.

193. A system, comprising:

a hardware host unit coupled to a host computer different from the hardware host unit; and

a remote computer software utility, located at a remote site computer, comprising:

a connection utility to establish a communication session with the host unit over a communication link; and

a pop up menu utility providing at least a user choice at the remote site computer to obtain access to the host computer via the communication utility.

194. A computer monitoring system for monitoring the information displayed on a video display terminal connected to, and receiving display information from, a data processing device comprising:

a microprocessor controlled computer hardware device working even if the data processing device is locked up and no longer processing data or input commands, wherein the microprocessor controlled computer hardware device includes a video raster signal input circuit for receiving a video raster signal representative of the information displayed on the video display terminal from the data processing device and a converter communicating with the video

raster signal input circuit to convert the video raster signal into a digital signal representative of the information contained in the video raster signal.

195. The system according to claim 194, wherein said converter comprises *a character determiner for determining the identity of each character displayed on the video display terminal and for generating a digital code indicative of the identity of said each character displayed on the video display terminal, and*

wherein said character determiner comprises circuitry for generating a series of cyclic redundancy checks, wherein each said cyclic redundancy check is generated from the pixel information associated with each character location on the video display terminal.

196. The system according to claim 195, further comprising *a transmitter coupled to said converter for transmitting said digital code to a remote location.*

197. The system according to claim 196, further comprising:

a receiver at said remote location coupled to said transmitter for receiving said digital codes transmitted by said transmitter; and

a remote video display coupled to said receiver for displaying said digital codes received from said receiver, said display showing an image sufficiently similar to that shown on the video display terminal to allow a user to determine the operational status of the data processing device.

198. The system according to claim 195, *wherein said digital codes are transmitted to said remote location in response to a command received from said remote location requesting that said digital codes be transmitted.*

199. The system according to claim 195, further comprising *a network for interconnecting a plurality of said microprocessor controlled computer hardware devices with one another and for allowing a user at said remote location to selectively access any one of said microprocessor controlled computer hardware devices or its associated data processing device.*

200. The system according to claim 195, further comprising:

a memory connected with said converter for storing said digital codes to retain an image of the information displayed on the video display terminal; and

a controller coupled to said memory and said converter for monitoring changes to said image and for storing said digital codes representative of said changes in said memory, whereby said memory contains a series of image frames that can be used by an operator to determine the cause of a system failure.

201. The system according to claim 195, further comprising:

a trainer coupled to said character determiner for generating a predetermined character display and for storing said digital codes generated by said character determiner representative of each character on said predetermined display; and

a comparator communicating with said trainer and said character determiner for comparing said digital codes generated for an unknown display on said video display terminal with said digital codes representative of each character on said predetermined display, whereby the identity of each character displayed on said unknown display can be determined.

202. The system according to claim 195, further comprising *a synchronization signal input circuit for receiving from the data processing device a horizontal synchronization signal,*

and a pixel clock generator connected with said synchronization signal input circuit and said converter for generating a pixel clock signal,

wherein said data processing device is a personal computer, and said video raster signal input circuit comprises a circuit interconnected between said personal computer and the video display terminal.

203. The system according to claim 195, *wherein the data processing device is a personal computer, wherein the video raster signal input circuit is coupled to said personal computer for receiving a video raster signal and a horizontal synchronization signal from said personal computer, and wherein the system further comprises:*

a video signal output circuit coupled to said video display terminal and said video signal input circuit for supplying said video raster signal and said horizontal synchronization signal to said video display terminal;

a host site command input circuit located with said personal computer for receiving commands from a host site user to be processed by said personal computer;

a command output circuit coupled to said local command input circuit and with a standard keyboard interface of said personal computer for supplying commands to be processed by said personal computer to said standard keyboard interface of said personal computer;

a transmitter coupled to said converter and said command output circuit for transmitting said digital signal to a remote location and for transmitting commands received from said remote location to said command output circuit;

a remote command input circuit at said remote location coupled to said transmitter for receiving commands to be transmitted to and executed by said personal computer; and

a remote video display for receiving said digital signals representative of the information contained in said video raster signal and for displaying said signals to allow a user at said remote location to view the information displayed on said video display terminal coupled to said personal computer,

wherein the converter comprises a pixel clock generator for generating a pixel clock signal;

whereby computer service personnel at the remote location can determine the present operating status of the file server, determine repair action to be taken if necessary, and initiate said repair action by transmitting commands to be executed by said personal computer to said personal computer.

204. A method of converting the information contained in a video raster signal generated by a data processing device and displayed on a video display terminal associated with the data processing device, *into a digital representation of that information for monitoring the information,* the method comprising:

receiving the video raster signal; and

converting the video raster signal into a digital signal representative of the information contained in the video raster signal independently from the data processing device.

205. The method according to claim 204, *wherein said converting step includes the steps of determining the identity of each character displayed on the video display terminal and generating a digital code indicative of the identity of said each character displayed on the video display terminal, wherein said step of generating a digital code comprises the step of generating*

a series of cyclic redundancy checks from the pixel information associated with each character location on the video display terminal.

206. The method according to claim 205, further comprising the step of *transmitting said digital codes to a remote location.*

207. The method according to claim 206, further comprising the steps of:

receiving said digital codes transmitted to said remote location; and

displaying said digital codes received from said remote location to create an image sufficiently similar to that shown on the video display terminal to allow a user to determine the operational status of the data processing device.

208. The method according to claim 205, *wherein said step of transmitting said digital codes to said remote location is performed in response to a command received from said remote location requesting that said digital codes be transmitted.*

209. The method according to claim 205, further comprising the steps of:

analyzing a predetermined character sequence displayed on the video display terminal to determine the identity of each character displayed on said video display terminal;

generating a digital code representative of each character in said character sequence displayed on said video display terminal; and

storing said digital codes in a memory, whereby future unknown screen displays can be compared with said digital codes to determine the identity of characters displayed on said future unknown screen displays.

210. The method according to claim 204, further comprising the steps of:

receiving a horizontal synchronization signal from the data processing device; and

generating a pixel clock signal in synchronization with said horizontal synchronization signal, wherein said data processing device is a personal computer, and said video raster signal in intercepted between said personal computer and the video display terminal.

211. A circuit module for a computer having in operation therein *a remote access engine to communicate between a host server and a remote workstation*, comprising:

a main CPU to coordinate a digital to analog conversion of host video signals from the host server;

a field programmable gate array, in communication with the main CPU;

a video interface circuit, in communication with the field programmable gate array, to capture the host video signals for the main CPU and field programmable gate array;

a video RAM to store host video signals digitized by the main CPU and field programmable gate array, and to deliver the digitized video signals to the remote access engine for delivery to the remote computer, the video RAM in communication with the field programmable gate array to receive at least video sync processing from the field programmable gate array;

at least one of a mouse driver circuit and a keyboard driver circuit, in communication with the main CPU, to receive, respectively, mouse and keyboard information from the remote computer;

a bus controller, in communication with the field programmable gate array, to communicate information identifying the digitized host video signals and the mouse and keyboard information to the remote access engine.

212. A remote access system communicating with a digital network transmission medium to communicate user input signals from a remote computer to a host computer via the transmission medium and video signals from the host computer to the remote computer via the transmission medium, comprising:

a user input process to capture the user input signals for digital transmission to the host computer;

a video process to capture the video input signals, digitize them and format them for transmission to the remote computer, even when the host computer has locked up to no longer accept any user input signals;

a standard remote access engine:

to communicate the user input signals on the transmission medium between the host and remote computers, and

to communicate the video signals, in digital format, on the transmission medium between the host and remote computers, even when the host computer has locked up to no longer accept any user input signals.

213. A circuit module for a computer *having in operation therein a remote access engine to communicate between a host server and a remote workstation*, including:

video buffer circuits to receive, respectively, red, green and blue analog video signals from the host server;

sync polarity circuits to receive, respectively, horizontal and vertical sync signals from the host server;

analog to digital converters communicating with the video buffer circuits to receive the red, green and blue analog video signals and convert them to digital video signals;

a phase locked loop video dot clock circuit communicating with the sync polarity circuits and outputting a dot clock signal;

a TTL converter receiving the digital video signals and converting them to a TTL format; and

a video processing circuit, including a cpu and a programmable gate array, connected to the sync polarity circuits, the phase locked loop video dot clock circuit, and the TTL converter to automatically determine a graphics mode of the red, green and blue analog video signals.

214. A circuit module according to claim 213, *wherein the programmable gate array includes circuitry to determine a video frame rate characteristic of the red, green and blue analog video signals.*

215. A circuit module according to claim 213, *wherein the graphics mode includes a number of available colors.*

216. A circuit module according to claim 213, *wherein the graphics mode includes a screen resolution in horizontal pixels per screen by vertical pixels per screen.*

217. A circuit module according to claim 213, *wherein the graphics mode includes a table characterizing a number of available colors versus a screen resolution in horizontal pixels per screen by vertical pixels per screen.*

218. A circuit module according to claim 213, *wherein the video processing circuit includes memory to store a set of predefined video graphics mode characteristics, and wherein the video processing circuit further divides the red, green and blue analog video signals into one*

or more video screen segment parts and compares the video screen segment parts to the stored predefined video graphics mode characteristics.

219. A circuit module according to claim 218, *wherein the video processing circuit includes a video checksum manager for storing and managing checksums associated with each video screen segment part.*

220. A computer having a virtual path communication link with a remote computer over a network medium, comprising:

a remote access engine;

a data bus;

a set of circuit modules in communication with a set of corresponding host computers to receive analog video signals from the corresponding host computers, to digitize the analog video signals, to synchronize the video signals to a video display characteristic of the remote computer, and to present the digitized and synchronized video signals to the data bus;

a communication port establishing a network connection via the network medium between the remote access engine and a selected one of said set of circuit modules to receive the digitized and synchronized video signals and to deliver the selected digitized video signals to the remote computer for display.

221. A computer according to claim 220, wherein:

each circuit module includes:

a main CPU to coordinate a digital to analog conversion of host video signals from a corresponding host computer;

a field programmable gate array, in communication with the main CPU;

a video interface circuit, in communication with the field programmable gate array, to capture the host video signals for the main CPU and field programmable gate array;

a video RAM to store host video signals digitized by the main CPU and field programmable gate array, and to deliver the digitized video signals to the remote access engine for delivery to the remote computer, the video RAM in communication with the field programmable gate array to receive at least video sync processing from the field programmable gate array;

at least one of a mouse driver circuit and a keyboard driver circuit, in communication with the main CPU, to receive, respectively, mouse and keyboard information from the remote computer;

a bus controller, in communication with the field programmable gate array, to communicate information identifying the digitized host video signals and the mouse and keyboard information to the remote access engine.

222. A remote access device to remotely control a host computer and to receive at a remote location a video signal from the host computer, comprising:

a remote access engine between the host computer and the remote location to coordinate delivery of data packets along a telecommunications link between the host computer and the remote location; and

a remote access controller, including a remote access control card communicating with the telecommunications link, to read a present caller ID associated with the remote location, to store a list of predefined caller IDs, to compare the present caller ID with the list and to disable the remote access engine whenever the present caller ID fails to match any from the list of predefined caller IDs.

223. A remote access device according to claim 222, *wherein the remote access controller further includes a telephone jack to automatically issue a page alert to a predefined telephone number whenever the present caller ID fails to match any from the list of predefined caller IDs.*

224. A remote access device according to claim 222, *wherein the remote access controller further resets the host computer wherever the predefined caller ID matches the present caller ID.*

225. A remote access device according to claim 222, *wherein the remote access controller further reboots the host computer wherever the predefined caller ID matches the present caller ID.*

226. A remote access device according to claim 222, further including *an external modem and a control module providing AC power to the host computer, the external modem communicating with the control module and automatically answering calls received by the external modem on a different telecommunications link, said control module temporarily interrupting power to the host computer whenever said external modem automatically answers a call.*

227. A computer circuit coupled to a data bus and communicating with a Host PC, comprising:

a video input buffering circuit receiving RGB video signals from the Host PC;

an analog to digital converter circuit coupled to the video input buffering circuit to receive and digitize the RGB video signals;

a main gate array circuit to receive the digitized RGB video signals from the analog to digital converter circuit;

a video memory circuit to store the digitized RGB video signals;

a second gate array circuit coupled to the main gate array circuit, the second gate array circuit bridging data between the main gate array circuit and the data bus;

a system clock circuit providing clock signals to the main and second gate array circuits;

a main cpu, communicating with the main and second gate array circuits to direct data between the video memory circuit and the second gate array circuit, the main gate array also controlling data traffic between the analog to digital converter circuit, the video memory circuit, and the main cpu;

a keyboard cpu in communication with the main cpu and at least one of an external keyboard and an external mouse; and

a pixel clock generator to provide a pixel clock signal to the analog to digital converter circuit, the pixel clock generator reproducing in frequency and phase a host pixel clock signal used by the Host PC to produce the RGB video signals received by the video input buffering circuit.

228. A computer circuit according to claim 227, *wherein the video memory is a combination of interleaved video RAMs.*

229. A computer circuit according to claim 227, *wherein the video input buffering circuit includes operational amplifiers, one for each R, G, and B component of the RGB video signal.*

230. A computer circuit according to claim 227, *wherein the main gate array circuit includes a checksum section to determine a checksum difference between two video frames of the RGB video signal.*

231. A computer circuit according to claim 227, *wherein the main gate array circuit includes a checksum section to determine a checksum difference between two video frames of the RGB video signal and delivers the checksum difference to the second gate array circuit.*

232. A computer circuit according to claim 227, *wherein the video memory circuit includes a video RAM and a palette RAM, the main gate array circuit including a checksum section to derive a checksum difference between video frame information in the video RAM versus the palette RAM.*

233. A computer circuit according to claim 227, *wherein the second gate array circuit includes a timing and control section.*

234. A computer circuit according to claim 227, *wherein the second gate array circuit includes a video format decoding section.*

235. A computer circuit according to claim 227, *wherein the second gate array circuit including a video latch area.*

236. A computer circuit according to claim 227, *wherein the pixel clock generator includes a phase locked loop.*

237. A computer circuit according to claim 227, *wherein the second gate array circuit includes a video format decoding section generating a vertical blanking period signal and the*

pixel clock generator includes a sample and hold circuit receiving the vertical blanking period signal at a hold input of said sample and hold circuit, said sample and hold circuit having a hold period greater than a maximum vertical blanking period.

238. A computer circuit according to claim 227, further including:

an ID switch to uniquely identify the circuit communicating with the Host PC in comparison to other circuits communicating with other Host PCs via the data bus.

239. A circuit for communicating RGB video information from a Host computer to a remote computer via a network link, comprising:

video input circuitry to receive the RGB video information from the Host computer;

video processing circuitry to digitize the RGB video information and to decode a video format of the RGB video information received by the video input circuitry; and

a flash palette converter circuit, including:

an address mux receiving the digitized RGB video information as a stream of digital RGB pixel data;

a flash palette converter RAM being addressed by the stream of digital RGB pixel data and outputting for each RGB pixel a palette index byte corresponding to a color value of said RGB pixel.

240. A circuit according to claim 239, further including *a pixel assembly circuit to condense a number of palette index bytes into a single assembled pixel byte for storage, including:*

a logic array receiving the video format of the RGB video information from the video processing circuitry and receiving the palette index byte from the flash palette converter circuit; and

a set of flip-flops controlled by the logic array to assemble the number of palette index bytes as a function of a characteristic of the video format of the RGB video information.

241. A remote access PC to facilitate communications between a host computer and a remote computer distantly located relative to each other, comprising:

a remote access process to establish a logical data path between the host computer and the remote computer;

a control module having an AC power input to receive AC power from an external power source, an AC power output to deliver the AC power from the external power source to the host computer, a switch therebetween, and a control data input to receive a reboot signal and thereupon interrupt AC power to the host computer by operation of the switch;

a communication circuit establishing a different logical data path between the remote computer and the communication circuit, the communication circuit delivering the reboot signal to the control module when commanded to do so by the remote computer via the different logical data path.

242. A remote access PC according to claim 241, *wherein the communication circuit is a modem.*

243. A remote access device for communicating real time video signals from a host PC to a remote PC and for communicating mouse signals entered in response to the real time video signals from the remote PC to the host PC, comprising:

a video process to capture and digitize the video signals from the host PC including video signals indicating a position of a mouse pointer on a monitor associated with the host PC, the position of said mouse pointer identified by the video process being delayed by a period associated with the capturing and digitizing steps;

a mouse synchronizer to capture a current mouse position of the mouse pointer on the monitor associated with the remote PC;

a video application to communicate the current mouse position of the mouse pointer on the monitor associated with the remote PC to the host PC whereupon the host PC jumps the host mouse pointer to a position coincident with the current mouse position.

244. A remote access device according to claim 243, *wherein the current mouse position is communicated from the remote computer to the mouse synchronizer in the form of current X/Y coordinates of the remote computer mouse pointer.*

245. A remote access device according to claim 243, *wherein the mouse synchronizer captures the current mouse position of the mouse pointer on the monitor associated with the remote PC whenever a remote user clicks a mouse button.*

246. A remote access interface between a remote workstation having an associated remote monitor and a host device having an associated host monitor, comprising:

a host mouse;

a video capture circuit to intercept analog video signals from the host device and applying the analog video signals to the host monitor such that the host monitor displays a host pointer associated with the host mouse;

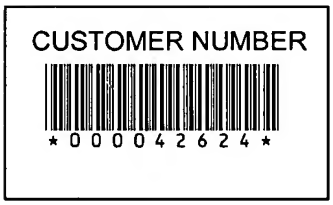
a mouse capture circuit to capture remote mouse signals from the remote workstation over a telecommunication path and to transmit the remote mouse signals to the host device for further processing as though the remote mouse signals were received from the host mouse;

a mouse adjustment process to cause the host pointer on the host monitor to jump to a position determined by the remote mouse signals.

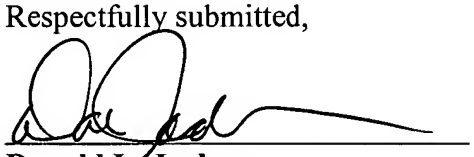
Any other information requested by this portion of the Request is beyond that permitted by rule 105, is unknown, and/or is not readily available to the party or parties from which it was requested.

Conclusion

In view of the foregoing, Applicants respectfully request favorable consideration of the application and earnestly solicit a notice of allowance.



Respectfully submitted,

By: 

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